

Abstract

A method is described for providing rapid on-line analyses of chemical compositions such as chemical process streams, utilizing near-infrared (NIR) spectroscopy in combination with chemometrics. In the method, for each type of analysis to be
5 conducted, a database is provided by analyzing a series of samples using standard laboratory analytical procedures, utilizing the results as reference values to establish quantitative calibration models from NIR spectroscopy using chemometric techniques and storing this information in a computer database. An NIR spectroscopic system is also
10 provided comprising a transreflectance or a transmittance probe coupled via fiber-optic cables to a stable white light source and a spectrograph. The probe is inserted into a test sample or chemical process stream to be analyzed, a stable white light of selected wavelength range is beamed to the probe and the spectra obtained on the spectrograph are recorded. Finally the spectra obtained are correlated to the reference data stored in the computer to obtain a rapid measurement of the analysis desired.